

Donahaye, E.J., Navarro, S., Bell, C., Jayas, D., Noyes, R., Phillips, T.W. [Eds.] (2007) Proc. Int. Conf. Controlled Atmosphere and Fumigation in Stored Products, Gold-Coast Australia. 8-13th August 2004. FTIC Ltd. Publishing, Israel. pp. 605-606

SURPRESSING MOTH POPULATIONS

DAVID K. MUELLER

*Insects Limited, Inc., 16950 Westfield Park Road, Westfield, IN 46074 USA
E-mail: insectsltd@aol.com*

ABSTRACT

The male pheromone attractant for Indian meal moth (*Plodia interpunctella*) and other stored product moth pests (Family Pyralidae.) was identified in 1971 by groups from the U.S. and Japan. Thirty years later in a laboratory in Stillwater, Oklahoma, Drs. Christian Nansen and Tom Philips discovered that female Indian meal moths respond to odors that can be incorporated into sticky traps. This discovery has led to the introduction of the new commercial product called MOTH SUPPRESSION. Moth Suppression contains a male pheromone, female egg laying attractant, along with a specially designed trap that incorporates visual cues.

Insects Live in a World of Odors After 100,000's of years of evolution, this moth species has learned to use both visual and chemical cues to locate food sources and to avoid predation. Insects use odors to communicate and guide their daily activities. These semiochemicals can be used for mating, egg laying (oviposition site), trails (ants), aggression (wasps), or selection of nesting sites (wasps).

Female moths are generally most active at dawn and dusk but they are only active if the temperature is higher than 19° C. As she detects suitable odors for egg-laying, she flies down to deposit 10-20 fertilized eggs on a suitable surface.

Discovery After screening many blended natural compounds, the research team at Oklahoma State University identified materials that attracted the adult female Indian meal moth. This egg laying attractant was tested in retail stores, seed warehouses, mills, food processing facilities, and under laboratory conditions. After multiple replications in various settings, it was observed that this female attractant could

capture as much as 44% of the female moths. A light to moderate population of pest moths can be suppressed when both male and female moths are captured.

Control This advanced pest management method can not truly be called control, but in combination with other pest management practices it has the potential to lower a moth population to an acceptable level.

The closer you get to the end consumer the more important it becomes to monitor and capture every insect pest individual, especially before they lay their eggs on finished products. Zero tolerance in a package of food is the goal of all food companies. If you can capture egg-laying moths before they infest a finished product, you now can start lowering customer complaints. Zero insect tolerance is possible when good prevention, monitoring, communication, and control programs are put in place.

Moth Suppression Limitations Dirty and unsanitary conditions can offer ideal egg-laying opportunities for the female Indian meal moth. When these conditions are cleaned up, the female moth has limited choices to lay her eggs. Moth Suppression was found to work best to attract those unwanted moths when grain and food spillage is cleaned up.

MOTH SUPPRESSION™ is patent-pending and a registered trademark of Insects Limited, Inc.